SKILLS FOR LIFE

Geography

Graphs and Charts

Historical Evidence

Critical Thinking

Using Cross-Sectional Maps

Sometimes it is necessary to use more than one type of map to nderstand the way a particular iece of land looks. Cross-sectional iaps show how an area of land ould look if viewed from the side. he cross-sectional map below iows the changes in elevation along ie route of the first transcontinental ilroad, completed in 1869. These ianges in elevation appear on the iap as the rising and falling of the old line. In contrast, physical-olitical maps show Earth's surface s if viewed from above. The phy-cal political map below gives a ird's-eye view of the vast horizontal istances covered by the railroad.

Snowstorms, floods, and extreme heat all posed great challenges to the workers who built the transcontinental railroad, but the greatest challenges arose from the changes in elevation of the terrain. Follow the steps below to study the cross-sectional map.

1. ***Study the region shown on the maps.*** (a) Which landforms on the physical-political map correspond to those on the cross-sectional map? (b) Does the cross-sectional map show the same land area as the political map? Explain.

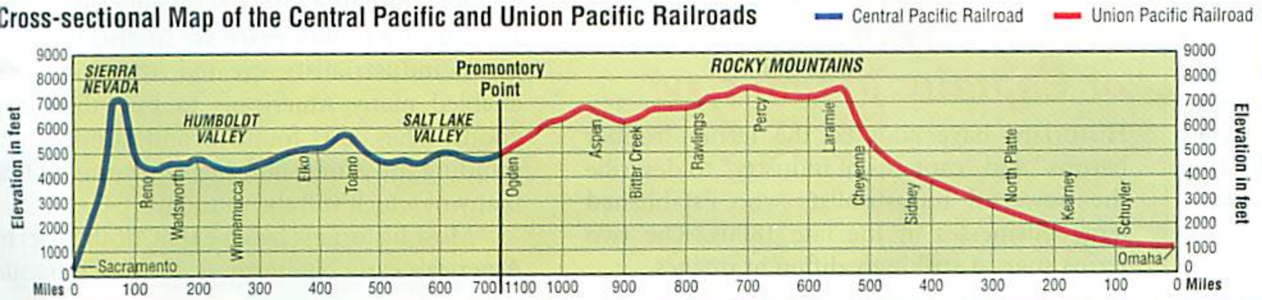
2. ***Analyze the information shown on the cross-sectional map.*** (a) What were the highest and lowest elevations of each railroad route? (b) Where did the sharpest and the most gradual changes occur? (c) Write a paragraph comparing the length and elevation changes of the Central Pacific and Union Pacific routes.

TEST FOR SUCCESS

Think about the route you follow to school or some other familiar route. Would a cross-sectional map like the one shown below help you explain your route to a stranger? Or would a physical-political map provide all the necessary information? Explain.

The Routes of the Union Pacific and Central Pacific Railroads

Cross-sectional Map of the Central Pacific and Union Pacific Railroads



1859	1870	1882	1889	1890
Titusville oil strike	Standard Oil founded	Standard Oil Trust set up	Carnegie Steel founded	Sherman Antitrust Act passed

1850 1860 1870 1880 1890

2 The Growth of Big Business

SECTION PREVIEW

Objectives

1. Explain why American industrialists of the late 1800s were called both "robber barons" and "captains of industry."
2. Describe the theory of social Darwinism and its connection to big business.
3. Summarize the ways that industrialists gained a competitive edge over rivals, and the effects that big businesses had on American society.
4. *Key Terms* Define: social Darwinism; monopoly; cartel; trust; Sherman Antitrust Act; horizontal consolidation; vertical consolidation; economies of scale; business cycle.

Main Idea

Big business created wealth for its owners and also for the nation, but it also prompted controversy and concern over its methods.

Reading Strategy

Finding Evidence Read the paragraphs under the heading "Robber Barons or Captains of Industry?" on this page. Look for evidence to support both of these views of industrialists of the late 1800s.

Industrial growth required the contributions of both workers and business owners, as this illustration suggests.

The period of invention after the Civil War set the stage for great industrial growth. Still, it would take more than technology to transform the United States. It would take shrewd businesspeople and wealthy investors willing to gamble on new products. Without huge amounts of capital, businesses could not build factories or market their inventions. To succeed, business leaders often combined funds and resources into large companies. Thus was born the age of big business.

Robber Barons or Captains of Industry?

Historians have adopted the terms "robber barons" and "captains of industry" to describe the powerful industrialists who established large businesses in the late 1800s. The two terms suggest strikingly different images.

"Robber barons" implies that the business leaders built their fortunes by stealing from the public. According to this view, they drained the country of its natural resources and persuaded public officials to interpret laws in their favor. At the same time, these industrialists ruthlessly drove their competitors to ruin. They paid their workers meager wages and forced them to toil under dangerous and unhealthful conditions.

The term "captains of industry," on the other hand, suggests that the business leaders served their nation in a positive way. This view credits them with increasing the supply of goods by building factories, raising productivity, and expanding markets. In addition, the giant industrialists created the jobs that enabled many Americans to buy their new goods. They also founded and funded outstanding museums, libraries, and universities, many of which still thrive today.

Most historians believe that both views of America's early big business contain elements of the truth. For example, consider the story of Andrew Carnegie, one of the United States' first great industrialists.

Andrew Carnegie

AMERICAN BIOGRAPHY Born in Scotland in 1835, Andrew Carnegie knew something about the harsh side of industrialization. His father was a skilled weaver, but the coming of the power loom caused the market for skilled craftsworkers to collapse. Carnegie's family faced hard times. As a result, they immigrated to the United States in 1848, settling near Pittsburgh, Pennsylvania.

Andrew Carnegie (1835–1919)

Though he was only 13 years old, Carnegie found work in a cotton mill at $1.20 a week. At age 18 he won the post of secretary to the superintendent in the Pennsylvania Railroad Company. When his boss went to work at the War Department during the Civil War, Carnegie was promoted to his job.

Captain of the Steel Industry By the time he was 30, in 1865, Carnegie was making $50,000 a year, and he wanted to invest his wealth. The development of the Bessemer process persuaded Carnegie that steel would soon replace iron in many industries. During the early 1870s, near Pittsburgh, he founded the first steel plants to use the Bessemer process. These holdings would eventually grow into the Carnegie Steel Company, which he established in 1889.

Carnegie's business prospered. This enabled him to cut his prices until he had driven his competitors out of the market. Carnegie soon controlled the American steel industry, from the mines that produced iron ore to the furnaces and mills that made pig iron and steel. He even bought up the shipping and rail lines necessary to transport his products to market.

Carnegie the Philanthropist While expanding his business, Carnegie became a major public figure. Through books and speeches, he preached a "gospel of wealth." The essence of his message was simple: People should be free to make as much money as they can. After they make it, however, they should give it away.

By the turn of the century, Carnegie had donated the money for roughly 3,000 free public libraries, supported artistic and research institutes, and set up a fund to study how to abolish war. By the time he died in 1919, Carnegie had given away some $350 million.

Still, not everyone approved of Carnegie's methods. As you will read later in this chapter, workers at his steel plants protested against his company's labor practices. Many others questioned the sincerity of his good works. In reply, Carnegie argued that the success of men like him helped the nation as a whole:

AMERICAN VOICES "It will be a great mistake for the community to shoot the millionaires, for they are the bees that make the most honey, and contribute most to the hive even after they have gorged themselves full."

—*Andrew Carnegie*

Social Darwinism

In statements such as these, Carnegie also suggested that the wealthy were somehow better than other people. This idea, popular in the late 1800s, was based on Charles Darwin's theory of evolution, first published in 1859. According to

CAUSE AND EFFECT: Growth of Big Business

CAUSES

- *Railroad boom lowers the cost of shipping.*
- *New inventions make businesses more efficient.*
- *Nation has rich supply of natural resources.*
- *Small firms merge to form giant companies.*

GROWTH OF BIG BUSINESS

EFFECTS

- *Steel and oil become giant industries.*
- *Monopolies, cartels, and trusts dominate major industries.*
- *Factory workers face harsh working and living conditions.*
- *Labor unions grow.*

Interpreting Charts Technological advances and aggressive business practices combined to form big business. ***Economics*** *What effects did the growth of big business have on workers?*

Main Idea CONNECTIONS

Why was the government concerned about monopolies?

Darwin, all animal life had evolved by a process of "natural selection" through which only the fittest survived to reproduce.

A theory soon emerged that applied Darwin's theory to the struggle between workers and employers. Called **social Darwinism,** it held that society should do as little as possible to interfere with people's pursuit of success. If government would stay out of the affairs of business, the theory went, those who were most "fit" would succeed and become rich. Society as a whole would benefit from the success of the fit and the weeding out of the unfit.

Most Americans agreed that the government should not interfere with private businesses. As a result, the government neither taxed businesses' profits nor regulated their relations with their workers.

Gaining a Competitive Edge

Industrialists used whatever means necessary, fair or unfair, to gain a competitive edge. They paid as little as they could for raw materials, labor, and shipping. Sometimes they sought to take control of their entire industry.

Monopolies and Cartels Some companies set out to gain a **monopoly,** or complete control of a product or service. To do this, a business bought its competitors or drove them out of business. Once consumers had no other place to turn for a given product or service, the sole remaining company could charge any price it wished.

Toward the end of the 1800s, federal and state governments passed laws to prevent certain monopolistic practices. Those laws did not prevent or destroy all monopolies, however. One reason was that political leaders refused to attack the powerful business leaders.

Ruthless competition was not the only route to wealth. Sometimes industrialists prospered by taking steps to limit competition with other firms. One way was to form a **cartel**—a loose association of businesses that make the same product. Members of a cartel agreed to limit the supply of their product and thus keep prices high.

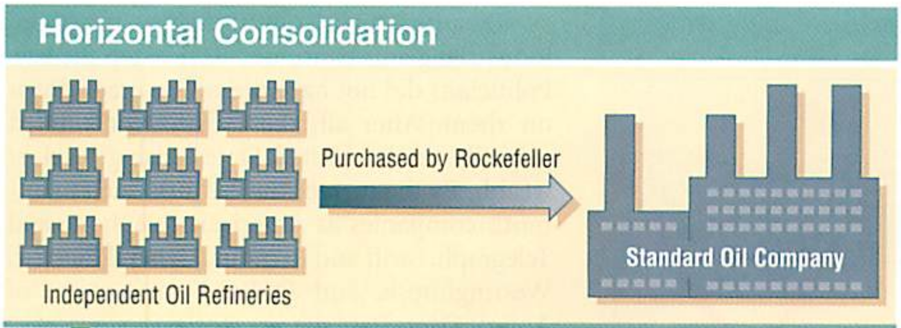
Neither monopolies nor cartels were foolproof. Monopolies faced the threat of government action, and cartels tended to fall apart during hard economic times. To achieve a more reliable arrangement, Samuel Dodd, a lawyer for oil tycoon John D. Rockefeller, invented yet another strategy.

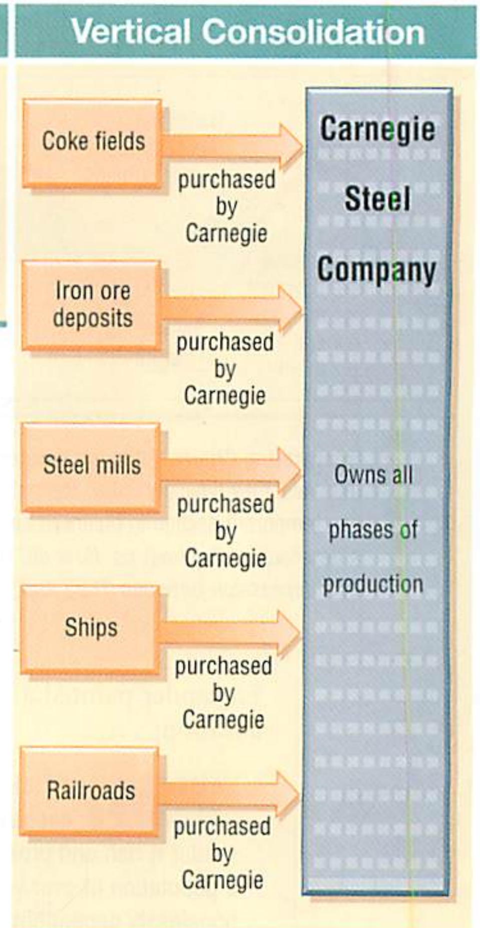
Some Americans were offended by the argument that business leaders protected jobs. ***Economics*** *What does this cartoon suggest about the relationship of workers to business leaders?*

The Standard Oil Trust Oil had become a major industry after Edwin L. Drake proved that it could be extracted from the ground through a well. Drake set up his well at Titusville, Pennsylvania, in 1858. A year later he struck oil, and Titusville soon became one of several boom towns in the northwestern part of the state.

Events in Pennsylvania excited John D. Rockefeller. He had become rich from a grain and meat partnership during the Civil War, and he saw the oil business as a way to become even richer. In 1863 Rockefeller built an oil refinery near Cleveland, Ohio. The refinery expanded rapidly. In 1870 Rockefeller and several associates formed the Standard Oil Company of Ohio.

Rockefeller persuaded his railroad friends to give him illegal refunds on part of the cost of transporting his oil. As a result





Interpreting Charts In the late 1800s large businesses dominated industry. Some companies grew more powerful through horizontal consolidation, in which companies simply bought competitors in their field (above). Other companies grew more powerful through vertical consolidation. By controlling all phases of production, they could lower the costs of making their product and charge less than their competitors (right). ***Economics*** ***What problems might a business face when trying to compete with a company with a vertical monopoly? With a horizontal monopoly?***

of these refunds, Rockefeller could set Standard Oil's prices lower than those of his competitors. As Rockefeller's company sold more oil, he was able to undersell his competitors by charging even less.

Rockefeller soon had enough money to buy out his competitors, but the law stood in his way. State laws prohibited one company from owning the stock of another. This practice reduced competition and therefore "restrained," or held back, free trade.

Samuel Dodd had an idea to get around this ban. In 1882 the owners of Standard Oil and companies allied with it agreed to combine their operations. They would turn over their assets to a board of nine trustees. In return, they were promised a share of the profits of the new organization. The board of trustees, which Rockefeller controlled, managed the companies as a single unit called a **trust.**

In time, 40 companies joined the trust. Because the companies did not officially merge, no laws were violated. Rockefeller's trust, a new kind of monopoly, controlled almost all of the nation's oil-refining capacity.

Trusts proved an effective means of limiting industrial competition. As a result, many Americans began to demand government action to break up these industrial giants. In 1890 Congress responded by passing the **Sherman Antitrust Act.** This law outlawed any combination of companies that restrained interstate trade or commerce.

The act, however, proved ineffective against trusts for nearly 15 years, because the federal government rarely enforced it. Besides, the law's vague wording made it hard to apply in court. The act was applied successfully against labor unions. Federal officials argued that labor unions restrained trade because workers were combining to gain an advantage.

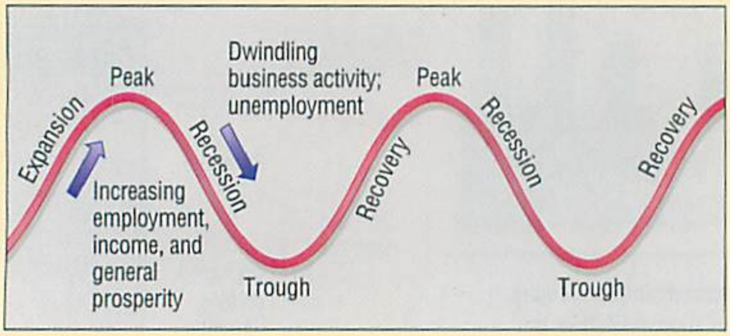
Methods of Industrial Control Rockefeller's use of the Standard Oil Trust to create a giant company was an example of **horizontal consolidation.** This method involved bringing together many firms that were in the same business. Other industrialists practiced **vertical consolidation,** or gaining control of the many different businesses that make up all phases of a product's development. Andrew Carnegie used this method in the steel business. He purchased not only steel plants but also the mines that supplied the iron and the railroads that transported the finished products.

By controlling all stages of steel production, Carnegie could lower his costs and drive competitors out of business. He could charge less because of **economies of scale.** That is, as production increases, the cost of each item produced is often lower. As Carnegie Steel expanded, its cost per item went down.

Effects on American Society

Few people truly liked trusts and other large business organizations. In 1873 a New

Business Cycles



Interpreting Charts Although business cycles have no regular intervals, they typically follow the pattern shown above. A recession is a temporary decline in business activity. A prolonged recession is a depression. ***Economics*** *How did rapid industrial growth result in a depression between 1893 and 1897?*

Englander painted a bleak picture of industrialization:

AMERICAN VOICES

"It is only too evident that the cause now at work in Lynn may render it rich and prosperous as a city, but with a population of overworked, underpaid hirelings, hopelessly dependent upon employers who act upon the good old rule, the simple plan—that they may take who have the power, and they may keep who can."

—*Resident of Lynn, Massachusetts*

Despite their questionable practices, industrial giants continued to sidestep the law. Politicians did not have the will to crack down on them. After all, these firms contributed mightily to the United States' rising level of wealth. By the turn of the century, such mammoth companies as American Telephone and Telegraph, Swift and Armour, General Electric, Westinghouse, and DuPont were some of America's greatest success stories.

Rapid industrial growth did place strains on the economy. Big businesses sometimes churned out more goods than consumers wanted or could afford. Then they had to lower prices in order to sell their products. To cover their losses, they often cut wages and laid off workers. The resulting shock to the economy could be severe. In 1893, for example, a period of expansion suddenly ended. By the end of the year, nearly 500 banks and more than 15,000 businesses had failed, and the economy sank into a four-year depression.

Economists call such a "boom and bust" period the **business cycle.** One cause of the depression that began in 1893 was a panic. Panics occurred when investors feared that key businesses, heavily in debt, might not be able to repay their loans. Investors rushed to sell stock, stock prices fell, and companies went bankrupt. The resulting unemployment caused widespread misery, especially among workers and their families.

SECTION 2 REVIEW

Comprehension

1. *Key Terms* Define: (a) social Darwinism; (b) monopoly; (c) cartel; (d) trust; (e) Sherman Antitrust Act; (f) horizontal consolidation; (g) vertical consolidation; (h) economies of scale; (i) business cycle.
2. *Summarizing the Main Idea* Describe some of the methods that companies used to dominate their markets, and explain why some people questioned those methods.
3. *Organizing Information* Make a two-column chart with columns headed *Robber Baron* and *Captain of Industry*. Now list people, events, and methods from the section in the appropriate column, along with a brief explanation of why each entry appears where it does.

Critical Thinking

4. *Analyzing Time Lines* Review the time line at the start of the section. Which events could be causes of the Sherman Antitrust Act? Which one event is the likeliest cause? Explain.
5. *Formulating Questions* Write a question that would help you or another reader better understand the information about Andrew Carnegie in this section.

Writing Activity

6. *Writing a Persuasive Essay* Write an essay in which you explain your agreement or disagreement with the theory of social Darwinism and attempt to convince others to accept your viewpoint.